of adverse events (NAE); extrapyramidal symptoms (EPS); weight gain (WG); and sexual dysfunction (SD). The transition probabilities amongst health states were estimated from two different meta-analysis of clinical trials and from a retrospective Spanish study. The health care costs associated to each health state were obtained from a published Spanish study. It was used the minimum acquisition cost per mg. of the mean daily dose, for each AA, which is regarded as a relevant efficiency criterion in Hospital Pharmacy Departments. The time horizon applied in the analysis was 12 months. a probabilistic sensitivity analysis was performed for all the variables involved in the analysis via Monte Carlo simulations. All costs were inflated to 2009 costs using Spanish Health System pay and prices index. **RESULTS:** In comparison with OLA, the treatment with ARI generates annual average cost savings per patient of €–688.70 ± 21.69 (CI 95% –614.52; –729.18). In the most unfavourable scenario for ARI, that in which we assumed that ARI may have a similar rate of sexual dysfunction than that of quetiapine (i.e. the lowest rate amongst AA) the costs savings per patient would be €–270,94 ± 17,11 (CI 95% –237,20; –303,48). **CONCLUSIONS:** The results of this analysis show that patients treated with aripiprazole demonstrate lower adverse events costs in comparison to olanzapine. This difference may generate significant cost savings to the Spanish health system in the treatment of patients affected by bipolar disorders. The robustness of the results was tested via a probabilistic sensitivity analysis.

PMH15

REAL-WORLD TREATMENT PATTERNS AND HEALTH CARE RESOURCE UTILIZATION IN GENERALISED ANXIETY DISORDER (GAD): A RETROSPECTIVE UNITED STATES DATABASE ANALYSIS

Locklear J[1], Wade S[2], Palmer LA[3], Järbrink K[4], Toghanian S[4]

[1]AstraZeneca Pharmaceuticals, Wilmington, DE, USA; [2]Wade Outcomes Research and Consulting, Salt Lake City, UT, USA; [3]Thomson Reuters, Washington, DC, USA; [4]AstraZeneca R&D, Mölndal, Sweden

OBJECTIVES: Real-world treatment patterns and health care resource utilization for patients with GAD in the United States are not fully defined. **METHODS:** Data from the 2003–2007 Thomson Reuters MarketScan® Commercial Claims and Encounters and Medicare Supplemental and Coordination of Benefits databases were utilised for analysis. For the current analysis, participants with a diagnosis of GAD (ICD-9 CM 300.02) between January 1, 2004 and December 31, 2006 were included. The sample was divided into the following five subgroups: patients receiving non-pharmacological treatment, first-line therapy only, first-line + augmentation within 90 days of index prescription, first-line + switch within 90 days of index prescription and second-line therapy only. Additionally, GAD patients were compared with healthy controls without GAD or other mental health conditions. **RESULTS:** In total, 23,553 GAD patients (mean age range: 41.6–48.1 years; 56.1–68.6% female across the five groups) were included (non-pharmacological, n = 7055; first-line only, n = 6538; first-line + augmentation, n = 903; first-line + switch, n = 1953; second-line only, n = 7104). Paroxetine was the most commonly used first-line treatment at index (first-line cohorts: 48%, 42%, 41%, respectively). In the second-line only cohort, a benzodiazepine (37%) or second-line SSRI/SNRI (27%) were the most commonly used agents at index. Benzodiazepines were the most commonly prescribed agents for augmentation of, or switching from, first-line treatments (augmentation 52%, switch 44%). Overall, GAD patients had higher health care utilization and significantly higher total health care costs versus healthy controls (mean per patient: $8058 vs. $2938, $P < 0.0001$). On average, GAD patients incurred an additional $425/month in direct health care costs in the 1-year post-index period versus healthy controls. **CONCLUSIONS:** The real-world management of GAD is both complex and costly. Paroxetine was the most-widely used first-line treatment for GAD. Benzodiazepines were the most widely used agents for augmentation of, or switching from, first-line treatments, and for second-line therapy. Total health care costs were 2.7 times higher for GAD patients compared with healthy controls.

PMH16

THE ECONOMIC AND HUMANISTIC BURDEN OF ILLNESS IN GENERALISED ANXIETY DISORDER (GAD): A RETROSPECTIVE DATABASE ANALYSIS IN EUROPE

Toghanian S[1], DiBonaventura M[2], Järbrink K[1], Locklear J[3]

[1]AstraZeneca R&D, Mölndal, Sweden; [2]Kantar Health, New York, NY, USA; [3]AstraZeneca Pharmaceuticals, Wilmington, DE, USA

OBJECTIVES: There is a paucity of published evidence estimating the economic and humanistic burden of illness in GAD. We report results of a retrospective database analysis examining the burden of GAD in Europe. **METHODS:** Data were derived from the European (France, Germany, UK, Italy, Spain) National Health and Wellness Survey database for 2008. The database captures information from adults (≥18 years) and is representative of the adult population in each country. Respondents reporting a diagnosis of GAD were propensity-score matched 1:1 to non-GAD controls on country, age, gender and employment status. Data were extracted on GAD medication use, resource utilization (emergency room visits, hospitalizations and health care provider visits) and work productivity (using the Work Productivity and Activity Impairment questionnaire) to calculate direct and indirect costs. Health-related quality of life (HRQoL) was derived using SF-12 mental and physical summary scores. Utilities were derived from SF-6D preference scores and used to calculate cost per quality-adjusted life-year (QALY). **RESULTS:** Of 53,524 respondents, 3,669 were assigned to the GAD group. GAD respondents accrued considerably higher direct (medication and health care resources) plus indirect (work productivity loss) costs (per person/year) versus controls across pooled European countries (€5,308.80 vs. €2,441.10; $P < 0.0001$) and for each country (France €6,083.70 vs. €2,896.30; Germany €12,797.00 vs. €4,876.10; UK €4,021.70 vs. €2,011.20; Italy €3,514.50 vs. €1,869.60; Spain €5,051.70 vs. €1,954.80; $P < 0.0001$ vs. controls within each country). Direct costs were driven by hospitalizations and psychologist/psychiatrist visits. Total costs increased with GAD severity from €4,094.00 for respondents with mild GAD to €7,753.10 for those with severe GAD. HRQoL was significantly poorer for GAD versus non-GAD respondents ($P < 0.0001$). Costs/QALY increased with GAD severity from €6,795 for mild GAD to €15,286 for severe GAD. **CONCLUSIONS:** The economic and humanistic burden of illness of GAD across Europe is considerable and increases with the severity of disease.

PMH17

COST OF ATTENTION DEFICIT/HYPERACTIVITY DISORDER IN GERMANY

Braun S[1], Zeidler J[1], Linder R[2], Ahrens S[2], Manouguian MS[2], Greiner W[3]

[1]Leibniz University of Hannover, Hannover, Germany; [2]Scientific Institute of Techniker Krankenkasse for Benefit and Efficiency in Health Care, Hamburg, Germany; [3]University of Bielefeld, Bielefeld, Germany

OBJECTIVES: Data concerning costs of patients with Attention deficit/hyperactivity disorder (ADHD) are scarce in Germany. Aim of this claims data analysis was to examine the costs of ADHD from the perspective of the statutory health insurance. **METHODS:** Nation-wide claims data of a major statutory health insurance fund was used to evaluate the overall and ADHD-related costs of ADHD-patients in 2008. All costs for outpatient care, inpatient care, pharmaceuticals, rehabilitation, occupational therapy as well as devices and aids, and sick leave payments were analyzed. To calculate ADHD-related costs the overall health care costs of the identified ADHD-patients were compared to an age and gender matched control group. **RESULTS:** Based on the used identification algorithm 30,264 ADHD-patients were identified. Mean overall costs of €3802 in the year 2008 were incurred from the health insurance perspective. €1704 (45%) were incurred by occupational therapy as well as devices and aids, and €779 (20%) were due to inpatient care; €751 (20%) resulted from outpatient care. Costs for pharmaceuticals were €483 (13%) and for rehabilitation were €35 (≤1%). Costs for sick leave payments came to €50 (1%). The matched control group contains 404,565 patients. Compared to this control group the incremental mean costs of ADHD-patients were EUR 2,744. EUR 1,214 of these resulted from occupational therapy as well as devices and aids, €586 from inpatient care and €517 from outpatient care. Mean additional costs for pharmaceuticals in the ADHD-group were €367. **CONCLUSIONS:** The major cost driver in ADHD from a health insurance perspective in Germany is occupational therapy as well as devices and aids.

PMH18

THE COSTS OF DEPRESSION IN SWITZERLAND

Tomonaga Y[1], Szucs TD[2]

[1]Institute of Social and Preventive Medicine, University of Zurich, Zurich, Switzerland; [2]Institute of Pharmaceutical Medicine/European Center of Pharmaceutical Medicine, University of Basel, Basel, Switzerland

OBJECTIVES: To investigate the burden of depression in the Swiss population. The costs for the management of depressive patients will be analyzed for different severity classes of disease, based on the Hamilton depression rating scale, over a period of 12 months following diagnosis. **METHODS:** A prospective, multicentre, non-interventional study in psychiatrist practices was carried out. Patients who have been diagnosed with depression in the last three years were included. Patient's characteristics and resource utilization in the first twelve months after diagnosis were collected. Costs analysis, subdivided in direct and indirect costs, was performed for three depression classes (mild, moderate, severe), according to the Hamilton depression score (HAMD-17). Costs were also extrapolated to the national level. **RESULTS:** A total of 556 patients were included. Hospitalization and hospitalization days were directly correlated with disease severity ($P < 0.001$). Medical resource utilization linked to depression and antidepressant treatments were also correlated to disease status. Severe patients reported a significantly higher number of workdays lost and were significantly more often in disability insurance. Total direct costs per person, mainly due to hospitalization costs, were CHF 4,823 for mild, CHF 13,251 for moderate, and CHF 22,138 for severe depressions. Indirect costs, mainly due to workdays lost, resulted in CHF 11,892 for mild, CHF 17,267 for moderate, and CHF 22,710 for severe depressions. Extrapolation at national level resulted in a total burden of about CHF 11 billion. **CONCLUSIONS:** The burden of depression in Switzerland was estimated to be around CHF 11 billion. Costs of depression were directly related to disease severity. However, since many depressions remain unreported and since this analysis only included individuals between 18 and 65 years of age, it is reasonable to suppose that the total burden of depression may be even greater.

PMH19

BURDEN OF ILLNESS OF TREATMENT RESISTANT DEPRESSION

McInnis MM[1], Halseth MJ[2], Cyr P[1], Howland RH[3], Bockstedt Santiago L[2], Goss T[1]

[1]Boston Healthcare Associates, Inc., Boston, MA, USA; [2]Medtronic, Inc., Minneapolis, MN, USA; [3]University of Pittsburgh School of Medicine Western Psychiatric Institute and Clinic, Pittsburgh, PA, USA

OBJECTIVES: Major depressive disorder (MDD) is a leading cause of disability, morbidity, and mortality worldwide. The lifetime prevalence in the US is 17%. Treatment resistant depression (TRD) is generally defined as failure to achieve remissions

despite adequate treatment. About 30% of patients do not achieve remission after 4 different antidepressant treatment trials (Rush et. Al., 2006). a few studies have examined the economic burden of TRD, but none have investigated the cost associated with more chronic and extensive forms of TRD characterized by non-response to four or more treatment trials. The objective of this study is to compare the direct medical expenditures of TRD patients to chronic MDD patients. **METHODS:** Patients with chronic MDD (defined as 2 or more years of continuous treatment) and patients with very severe TRD (defined as switching, augmentation, or addition of at least four qualifying therapies) were identified in the PharMetrics Patient-Centric Database. Medical resource utilization (MRU) and payer costs per patient per year enrolled in the plan were compared. Patients were matched on duration of enrollment, length of depression, medications taken, and age. Statistical significance was assessed using Student's t-tests. **RESULTS:** The average medical expenditures per TRD (n = 31,803) patient per year enrolled was $12,260 compared to $7,619 for non-TRD chronic MDD patients (n = 50,092) ($p < 0.001$), representing 60.9% higher costs per year. The differences in annual medical expenditures per TRD patient were primarily driven by higher medical and pharmacy MRU (number of services per patient) relative to the chronic MDD group (70.3 vs. 107.6, $p < 0.001$). **CONCLUSIONS:** Our results demonstrate that TRD patients accrued significantly higher per patient medical costs than MDD patients due to higher medical resource use. These findings suggest that more effective non-pharmacological alternative interventions are needed.

PMH20

IMPACT AND COSTS OF HOSPITALIZATION IN SCHIZOPHRENIA

Zeidler J[1], Slawik L[2], Fleischmann J[2], Greiner W[3]
[1]Leibniz University of Hannover, Hannover, Germany; [2]Janssen-Cilag GmbH, Neuss, Germany; [3]University of Bielefeld, Bielefeld, Germany

OBJECTIVES: Data concerning impact and costs of hospitalization in patients with schizophrenia are scarce in Germany. Aim of this claims data analysis was to examine the impact and costs of hospitalization in schizophrenia from the perspective of a major statutory health insurance fund. **METHODS:** A nation-wide database was used to evaluate the impact and related costs of hospitalization in schizophrenia (ICD-10 F20.x) between 2004 and 2006. All hospitalised patients were identified based on claims data and schizophrenia related costs for outpatient care, inpatient care, medications, rehabilitation, occupational therapy, and sick leave payments were analyzed before, during and after the hospitalization. **RESULTS:** Data from 4126 hospitalised patients were available, with 46% being female and a mean age of 42 years. Mean length of the index hospitalization was 45.9 days and mean health insurance costs of €9366 incurred during the index hospitalization. In the 3 months before the index hospitalization, average costs of €297 and in the 3 months after the index hospitalization costs of €2322 incurred for outpatient care, inpatient care, medications, rehabilitation, occupational therapy, and sick leave payments. 42.5% of the patients had at least one rehospitalization after the index hospitalization and mean costs of €8710 incurred during the first rehospitalization. In the 4 weeks before the first rehospitalization average costs of €1310 and in the 3 months after the rehospitalization costs of €2834 incurred. With any further rehospitalization costs for the inpatient care itself are decreasing slightly but overall costs for schizophrenia related medical care before and after the event are increasing. **CONCLUSIONS:** Impact and costs of hospitalization in schizophrenia are significant, especially if the costs before and after hospitalization were taken into account. Rehospitalizations are a frequent event in schizophrenia care with high impact on costs. Further studies including the predictors of hospitalization are needed.

PMH21

SOCIETAL COSTS OF BIPOLAR DISORDER—THE CASE OF SWEDEN

Ekman M[1], Granström O[2], Omerov S[3], Jacob J[2], Landén M[4]
[1]i3 Innovus, Stockholm, Sweden; [2]AstraZeneca Nordic MC, Södertälje, Sweden; [3]Northern Stockholm Psychiatry, Stockholm, Sweden, [4]Gothenburg University, Göteborg, Sweden

OBJECTIVES: To investigate the health care resource utilization and costs for Swedish bipolar disorder patients. **METHODS:** Registry data on socio-demographics and disease-related resource use during 2006–2008 was collected for 1846 patients with bipolar disorder. Health care visits and hospitalizations were obtained from the Northern Stockholm psychiatric clinic, while data on pharmaceuticals and sick leave were obtained from the national pharmaceutical registry and the Swedish social insurance agency, respectively. Community care data was obtained from the Swedish quality registry for bipolar disorder (BipoläR). Indirect costs were valued according to the human capital method. Costs across mood episodes (manic, depressive, and unspecified) as well as remission were calculated. a patient for which >70 days had passed since the last new episode or inpatient visit, was defined as being in remission. **RESULTS:** The mean annual cost per patient with bipolar disorder was estimated at €24,300 (SEK 242,810) in 2009 prices, of which 23% represented direct treatment costs. The costs per month for active bipolar disorder were €6800 during depression, €6300 during mania, EUR 6,100 during unspecified episodes, and €1500 for patients in remission. a patient who was not hospitalized during 2006–2008 generated a mean annual cost of €18,900, whereas a patient who was hospitalized at least once every year 2006–2008 generated mean annual costs of €67,600. **CONCLUSIONS:** Societal costs for bipolar disorder were more than 3.5 times higher for patients who were admitted at least once per year in 2006–2008 compared to those who were not hospitalized. Monthly costs during a depressive or manic episode were more than 4 times higher than during remission. Attempts to prevent mood episodes by means of effective treatment may not only decrease patient suffering, but also have the potential to dramatically reduce the societal cost of illness.

PMH22

RESULTS OF THE GERMAN IDA STUDY—ASSESSING THE FINANCIAL IMPACT OF INFORMAL CARE AMONGST COMMUNITY LIVING DEMENTIA PATIENTS

Schwarzkopf L[1], Kunz S[1], Wunder S[2], Marx P[3], Lauterberg J[4], Gräßel E[5], Holle R[1]
[1]Helmholtz Zentrum München—German Research Center for Environmental Health (GmbH), Neuherberg, Germany; [2]AOK-Bayern /die Gesundheitskasse, Nürnberg, Germany; [3]Pfizer Deutschland GmbH, Berlin, Germany; [4]Federal Association of the AOK, Berlin, Germany; [5]University Hospital Erlangen, Erlangen, Germany

OBJECTIVES: Rising life expectancy is associated with increasing prevalence of dementia in European countries. With progressing disease severity patients' call on health care services and social support grows. Several studies stress the burden imposed on family members caring for dementia-patients. However, empirical data assessing the economic value of informal care compared to health insurance expenditures is scarce. Within the cluster-randomized IDA study health care service utilization and informal caregiving time were assessed for 383 community living individuals suffering from mild to moderate dementia. **METHODS:** To examine costs from a health insurance perspective administrative data on all types of services provided were collected and valued with corresponding administrative prices over a three-year period. Patients' caregivers reported in yearly interviews the hours daily dedicated to the patient in care and supervision. The time provided for informal caregiving was valued by applying hourly wages of a nursing service and a domestic help respectively. Total costs and cost components were calculated from societal perspective and payers' point of view and analyzed by relevant subgroups. **RESULTS:** Caring for a home-dwelling dementia-patient amounts annually to around €47.000 from societal perspective with informal care covering nearly 80% of this sum. For a patient with moderate dementia values assigned to informal care are approximately 70% higher than for a person with mild dementia. Health insurance has to spend €10,000 for an average dementia-patient per year, with services for long-term care representing the most costly part. **CONCLUSIONS:** Informal care is the major cost component in care for dementia, and it is strongly rising with disease progression. Changes in family structures and traditional living arrangements thus pose an enormous challenge regarding the future organization of dementia care. To maintain today's care-setting, concepts fostering community-based dementia care and support to family caregivers need to be further developed.

PMH23

COSTS OF A COMMUNITY SUPPORT PROGRAM FOR DEPRESSION: RESULTS FROM THE BEAT THE BLUES (BTB) TRIAL

Jutkowitz E[1], Pizzi LT[1], Gitlin L[1], Foley K[2], Chernett N[1], McCoy M[3], Dennis M[1]
[1]Thomas Jefferson University, Philadelphia, PA, USA; [2]Thomas Jefferson University, Newtown, PA, USA; [3]Center in the Park, Philadelphia, PA, USA

OBJECTIVES: Literature on the costs of community support programs is scant. Beat the Blues (BTB) is a home support program for depression which involves trained social workers who meet with participants to identify care management concerns, make referrals and linkages, provide depression education, develop tailored action plans to accomplish identified behavioral goals and enhance engagement in pleasurable activities, and teach stress reduction techniques for managing daily stressors (e.g., deep breathing). The primary objective of this study is to assess the cost of implementing BTB in African American elders with depressive symptoms. **METHODS:** The cost analysis is piggybacked onto the parent BTB trial, which employs randomized two-group experimental design (treatment vs. control). Candidates are screened twice for depressive symptoms (PHQ-9 score > 5) to determine eligibility. Participants are randomly assigned to intervention or waitlist control. BTB is administered over 4 months with assessments in both groups at baseline and 4-months. Cost components comprise 4 main categories (Screening, Intervention Delivery, Supervision, and Other). Senior center management and social workers (interventionists) kept detailed logs of time spent conducting each component. The cost of conducting the intervention was calculated as the time spent performing each task multiplied by wage rate of the individual who performed the task. Non-time related cost (material and mileage) was also calculated. **RESULTS:** A total of 166 participants received the intervention. Average cost of BTB was $342 per person. The most costly aspect of BTB per person was cost of program delivery ($275), followed by materials ($48).The least costly aspect of the intervention was time spent supervising interventionists ($9). **CONCLUSIONS:** This study informs decision makers about the resources required for depression community support interventions, which are not typically reimbursable through private or public health care programs. Results can also inform decision making regarding the costs of such interventions in relation to pharmacological treatments.

PMH24

HEALTH CARE UTILIZATION OF MAJOR DEPRESSIVE DISORDER PATIENTS

Myrén KJ, Löfroth E, Dahlberg E
IMS Health, Stockholm, Sweden

OBJECTIVES: To analyze the health care utilization by patients diagnosed with major depressive disorder (MDD). **METHODS:** This was a retrospective longitudinal descriptive database study of the utilization of health care by patients with MDD from the South-West region of Sweden (1.5 million inhabitants). All patients who were diagnosed with MDD (ICD-10 F32 or F33) during 2007 were included in the study. All costs from health care visits when an MDD was the primary diagnose were included as well as all cost from all dispensed antidepressant (ATC N06A) drugs. **RESULTS:** A total of 37,445 patients had at least one health care visit with an MDD